

## CLAIMS

What is claimed is:

**Claim 1:**

A method for producing a qualification map product for a radar product comprising:

- obtaining a dataset of terrain data for the radar product nominal coverage area;
- parsing said dataset into bins for each radial of said radar product;
- identifying the highest elevation terrain data point from each said bin;
- calculating the coverage value for each said bin;
- producing a data set of bin values for said coverage area.

**Claim 2:**

The method of claim 1 further comprising;  
producing a display data set of coverage values from said data set of bin values.

**Claim 3:**

The method of claim 1 further comprising;  
producing a display data set of blockage values from said data set of bin values.

**Claim 4:**

The method of claim 1 further comprising;  
producing a display data set of clutter values from said data set of bin values.

**Claim 5:**

The method of claim 1 wherein said identifying step is accomplished substantially as follows:

- generate a maximum terrain elevation data array from relevant terrain elevation

databases by first initializing said maximum terrain elevation data array,

for each terrain elevation database lat/long grid point that falls within the coverage range of the radar product,

get the grid point elevation value from the terrain elevation database,

compute the corresponding range and azimuth with respect to the radar

lat/long position,

convert the computed range and azimuth coordinates to the nearest terrain elevation array index values,

compute the number of terrain elevation data array azimuth bins spanned by the data base grid point,

update each of the terrain elevation data array bins as follows: if the elevation value for the grid point exceeds the current value of the terrain elevation data array bin, set the terrain elevation data array bin equal to the grid point elevation value,

wherein when all the multiple terrain elevation database lat/long grid points map to each elevation array bin in the terrain elevation data array, the resulting value of a particular terrain elevation data array bin will be a maximum of all data base grid points that map to the terrain elevation data array bin.

**Claim 6:**

A method of producing an elevation layer product employing the method of claim 1 comprising:

producing a display data set from bin values in elevation range of interest intersecting all covering radar tilts of interest for a radar.

**Claim 7:**

A method of producing a mosaic coverage map from each of the qualified radar maps produced with the method of claim 1, wherein said mosaic coverage map is defined with a same spatial structure as a corresponding mosaic radar product array to which the mosaic coverage map is to be applied, said method comprising:

for each one of said qualified maps, getting values for each bin;

for any bin from a qualified map having an overlap with a bin from another of said qualified maps, picking a most useful value for said bin;

using the most useful values of each of the bins within the corresponding product array to produce a completed mosaic coverage map of valued bins.

**Claim 8:**

The method of claim 7 wherein said most useful value is a value indicating greatest coverage of all overlapping bin coverage values.

**Claim 9:**

The method of claim 7 wherein said most useful value is a value indicating lowest blockage of all overlapping bin blockage values.

**Claim 10:**

The method of claim 7 wherein said most useful value is a value indicating highest clutter of all overlapping bin clutter values.

**Claim 11:**

The method of claim 7 wherein said most useful value is used to qualify radar product data related to said bin so as to produce a display of radar data accommodating said most useful value.

**Claim 12:**

The method of claim 11 wherein said accommodation of said radar product data and said most useful value for a given bin is a consensus value.

**Claim 13:**

A elevation tilt product qualification radar map produced by the method of claim 1.

**Claim 14:**

An elevation layer product qualification radar map produced by the method of claim 6.

**Claim 15:**

A radar mosaic product qualification radar map produced by the method of claim qualification map produced by the method of claim 7.

**Claim 16:**

A data file in a data file containing medium, containing software code which when executing on a general purpose computer system can configure said general computer system to execute the steps of the method of claim 1.

**Claim 17:**

A data file in a data file containing medium, containing software code which when executing on a general purpose computer system can configure said general computer system to execute the steps of the method of claim 6.

**Claim 18:**

A data file in a data file containing medium, containing software code which when executing on a general purpose computer system can configure said general computer system to execute the steps of the method of claim 7.

**Claim 19:**

A method for producing a clutter region map for a radar product comprising:  
obtaining a dataset of terrain data for the radar product nominal coverage area;  
parsing said dataset into bins for each radial of said radar product;  
identifying the highest elevation terrain data point from said bin;  
calculating the clutter value for said bin;  
delineating a data set of bin values for said coverage area.

**Claim 20:**

The method of claim 19, further comprising; producing a map having clutter zones where said calculated clutter value is above a predetermined value.

**Claim 21:**

An improved radar display algorithm for qualifying radar data product employing the qualified coverage, blockage, and/or clutter data maps, and modifying raw radar data product in accord with information from said maps.